

## 1. Summary

### 1.1. Description of the breed and its working characteristics

The Australian Kelpie is an Australian sheepdog breed. The breed has divided into a show (or sport dog) line and a working line. When breeding the Show Kelpie, focus has been on appearance and aptitude for dog sports, while Working Kelpies are bred mainly for their ability to work stock. Most Show Kelpies are family companions and sport dogs while Working Kelpies are principally used as stock herding dogs on farms. The temperament and working characteristics of the Australian Kelpie make the breed an ideal sport dog. Kelpies are therefore a frequent sight in many canine sports despite their small numbers.

### 1.2. Current situation of the breed and breeding objectives

#### Population structure and gene pool

The population of the Australian Kelpie is small in Finland. Therefore, every single breeding decision may have a profound effect on the breed's future. Annual registration figures for the Australian Kelpie have been around 80 to 90 dogs in recent years. In 2014, effective population size of the Australian Kelpie was 63 according to the Finnish Kennel Club's breeding database. At the moment, the most significant factor narrowing the breed's gene pool is the fact that the most-used breeding dogs are close kin to each other, which substantially reduces the actual effective population size. The formula used by the Finnish Kennel Club does not take into account how closely the dogs are related. Imported dogs and unregistered Working Kelpies introduced to the breed may be of great breeding-related value if they are healthy and represent lines that are rare in Finland. Nevertheless, excessive breeding use of such dogs should be avoided because of the small population size. The breed's inbreeding coefficient is moderate but slightly rising. The situation requires constant monitoring. In the Australian Kelpie, the breeding use of sires is spread quite evenly and the sires/dams ratio is close to one. There are, however, a number of breeding dogs with too many descendants. In addition, the numbers of second-generation descendants for some individuals used for breeding are higher than recommended. The emergence of 'fashionable' lines should be avoided by actively monitoring numbers of descendants in later generations and taking them into account in breeding decisions. Average breeding age of sires is a little over four years and that of dams a little less than four years. Males should be used for breeding at somewhat older age than now.

#### Temperament, behaviour and working characteristics

The Australian Kelpie was originally bred for working sheep. Herding instinct is an inherent behavioural pattern based on predatory behaviour but lacking the last phase of predation i.e. killing the prey. The Australian Kelpie is a so-called heading dog, meaning that he has an instinctive ability and desire to head and gather livestock and bring the animals to the handler. The differences between the Show Kelpie and Working Kelpie are most prominent in the strength of the herding instinct and in 'stock sense', i.e. the dog's natural ability to anticipate movement of livestock. The Australian Kelpie is generally an easy-going family companion when provided with enough activity. The Kelpie is typically very friendly towards people. Friendliness towards other dogs depends on the individual dog, but in general, Kelpies get along well with other dogs. Main problems with temperament are gun-nervousness and problems with nerve stability. Lack of drive

is something that prevents the breeding use of a dog, as the Kelpie should give the impression of a motivated tireless worker.

#### Health and reproduction

Main health problems with the Kelpie are developmental skeletal disorders and epilepsy. Developmental skeletal disorders requiring the closest monitoring are hip-joint dysplasia, luxating patella, and diseases of the spine. In addition, the prevalence of eye diseases should be monitored and surveyed. A majority of breeding dogs are screened for canine hip and elbow dysplasia. However, we hope that eye examinations and x-raying of backs will become routine in the future. In order to enhance hereditary characteristics, dogs used for breeding should be better than average in terms of the desired characteristics. Health test results should therefore be taken into account in breeding choices. Health test results for dogs closely related to the breeding dog should also be monitored more extensively than now. If a breeding dog already has several litters, health test results for the descendants should be available before using the dog again for breeding. Reproductive problems are comparatively rare, but when they do arise, they are a major handicap to breeding. When selecting dogs for breeding, breeders should bear in mind that reproductive characteristics are inherited. According to the Finnish Kennel Club's breeding strategy, any dog with a disease requiring a special diet or constant medical treatment should not be used for breeding. Nor should a breeding dog have illnesses that are detrimental to his welfare, health, or mobility. The Finnish Border Collie and Australian Kelpie Breed Club has launched a public health database in 2014. In the future, this database is expected to provide more information on the breed's health.

#### Appearance

According to the breed standard, the general appearance of the Australian Kelpie should be that of a lithe, active dog of great quality, showing hard muscular condition combined with great suppleness of limb and conveying the capability of untiring work. It must be free from any suggestion of weediness. There is nothing in the appearance of the breed that is too pronounced or exaggerated. The breed has remained medium size, medium strong, and physically active. There are no requirements in the breed standard exposing the breed to such welfare problems as mentioned on the Finnish Kennel Club's list of unhealthy features. Working Kelpie as a type differs slightly from the Show Kelpie, as he is larger than medium size and often somewhat taller in the leg. The breed is therefore inconsistent in type. Major differences lie in the strongness in bone, proportions, movement, coat thickness, and size. According to show critiques, key structural problems with the Australian Kelpie are related to lack of angulation and the resulting poor movement. Unbalanced conformation is reflected in the dog's movement. If the dog does not have the correct conformation, he is unable to move effortlessly with a good balance as is typical of the breed.

### **1.3. Main recommendations for breeding dogs**

The breed club recommends that dogs used for breeding should be as typical of the breed and healthy as possible. Every Kelpie used for breeding should have undergone at least official hip joint examination, spine examination, and eye examination. Dogs used for breeding should preferably have hip joints rated A or B (and those with hip joints rated C should only be mated with dogs with A joints), their eye examination results should show no evidence of inherited eye diseases and their screening results for lumbosacral transitional vertebra should be LTV0 (normal) or LTV1 (divided median crest (s1-s2) or other mildly abnormal structure). No breeding dog should have more than 15–20 descendants, and the number of second-generation descendants should be less than 30. A general goal is that a majority of dogs should reproduce only once. As for temperament, the dogs used for breeding should at least have proof of steadiness to gunshot

(temperament test, MH canine character evaluation, successfully completed working dog trial). It is advisable to train all breeding dogs to the extent that their courage, endurance and ability to stay focused and maintain drive can be assessed. In addition, breeding dogs should fulfil the requirements of the Finnish Kennel Club's current instructions for the registration of litters and import dogs. Inbreeding should be avoided when deciding on breeding pairs.

## 2. Contact information for breed club

Suomen bordercolliet ja australiankelpiet ry. [www.sbcak.fi](http://www.sbcak.fi)

Contact: jalostus.sbcak@gmail.com (email of the health committee)

## 3. Population structure and gene pool

Table 1. Number of annual registrations for the breed

Number of annual registrations for the breed										
	2014	2013	2012	2011	2010	2009	2008	2007	2006	2005
Pups, domestic	66	112	63	72	80	58	57	27	40	32
Imports	20	22	24	15	5	9	7	13	8	11
Registrations total	86	134	87	87	85	67	64	40	48	43
Litters	12	19	11	13	14	11	10	6	7	5
Litter size	5,5	5,9	5,7	5,5	5,7	5,3	5,7	4,5	5,7	6,4
Breeders	8	15	11	11	13	9	8	6	7	4
Different sires used for breeding										
-all	12	18	9	12	13	11	9	4	7	5
-domestic	4	7	5	6	3	4	4	2	4	4
-imports	3	2	1	2	4	3	2	2		1
-foreign	5	9	3	4	6	4	3	0	3	0
-average age for breeding	4 y 9 mo	3 y 11 mo	4 y 3 mo	6 y 8 mo	4 y 3 mo	4 y 6 mo	4 y 10 mo	4 y 3 mo	3 y 3 mo	3 y 7 mo
Different dams used for breeding										
-all	12	19	11	13	14	10	10	6	7	5
-domestic	11	14	9	7	13	4	5	3	5	2
-imports	1	5	2	6	1	6	5	3	2	3
-average age for breeding	3 y 1 mo	4 y 2 mo	4 y mo	4 y mo	3 y 2 mo	3 y 8 mo	4 y mo	3 y 1 mo	3 y 11 mo	4 y 10 mo
Grandsires	20	27	15	20	21	20	16	9	10	9
Grandmas	21	28	16	22	23	20	13	9	10	9
Inbreeding percentage	1,17%	0,87%	0,84%	1,45%	1,01%	0,66%	1,34%	0,45%	0,36%	0,16%

### 3.1. Summary of population structure and gene pool

Registration figures for the Australian Kelpie have been around 80 to 90 dogs in recent years (apart from the peak year 2013 when 134 dogs were registered). The breed has grown in popularity for over ten years but may now have reached its peak. Around ten litters are born annually, and therefore even a single litter has a wider impact on breeding. In 2014, effective population size of the Australian Kelpie was 63 according to the Finnish Kennel Club's breeding database.

Because of the small size of the Finnish Kelpie population, every single breeding decision may have a profound effect on the breed's future. At the moment, the most significant factor narrowing

the breed's gene pool is the fact that the most-used breeding dogs are close kin to each other, which substantially reduces the actual effective population size. In such cases, the Finnish Kennel Club's breeding database gives an overestimate of the effective population size based on the number of breeding dogs. Excessive use of same lines should be avoided, and breeders should look to non-related lines for potential breeding dogs. Imported dogs and unregistered Working Kelpies introduced to the breed may be of great breeding-related value if they are healthy and represent lines that are rare in Finland. Nevertheless, excessive breeding use of such dogs should be avoided because of the small population size.

The breed's inbreeding coefficient is moderate but slightly rising. The situation requires constant monitoring. In the Australian Kelpie, the breeding use of sires is spread quite evenly and the sires/dams ratio is close to one. There are, however, a number of breeding dogs with too many descendants. In addition, the numbers of second-generation descendants for some individuals used for breeding are higher than recommended. In a population as small as this, using several siblings from the same litter for breeding causes a risk that the parents of that litter are going to have too many second-generation descendants. The emergence of 'fashionable' lines should be avoided by actively monitoring numbers of descendants in later generations and taking them into account in breeding decisions. The number of second-generation descendants may be high even for dogs that themselves are not among the most-used breeding dogs.

The breeding age of male and female Kelpies has not significantly risen or fallen in the last ten years. Average breeding age of sires is a little over four years and that of dams a little less than four years. Males should be used for breeding at somewhat older age than now. As many diseases do not appear until older age, the value of a sire increases with age if he is still healthy and in good condition. Using same sires for multiple dams over a short period of time is not recommended. Health results for the first descendants should be available before using the dog again for breeding.

The Australian Kelpie population is small even on a worldwide scale, and the number of different lines is small. Most valuable imported dogs in terms of genotype are those that are imported from the country of origin, i.e. Australia. Since 2012 it has been possible to introduce Working Kelpies from certain registries to the breed. This further expands the gene pool, provided that these dogs are used for breeding. In a small population, however, the key priority is to avoid excessive breeding use of individual dogs.

### **3.2. Health programme (PEVISA, Programme to combat heredity diseases and defects) based on the number of descendants**

The number of registered descendants for a dog should not be more than 20 puppies. If the dog is under five years old, he should not have more than 12 descendants. However, all puppies in the latest litter about to exceed the limit value are registered.

#### **4. Summary of key problem points in the breed's behaviour and temperament as well as of measures to fix them**

The Australian Kelpie should always be highly responsive to commands, and he should be able to relax without problems both at home and elsewhere when not working. Still, there are dogs that are so distracted by their environment that they lose concentration and become nervous. This kind of behaviour is foreign to the breed. Kelpies should be outgoing and friendly towards people. However, there are dogs that are slightly or clearly reserved towards strange people.

The Kelpie is typically highly sensitive to body language: Many people fail to understand how dogs communicate and are unaware that their behaviour seems threatening to the dog. The Kelpie is prone to react to threatening signals by backing away or by offering calming or submissive signals. This, however, is not a sign of timidity, as some might be mistaken to assume, but simply intense body language.

Sensitivity to sounds is not uncommon in the Australian Kelpie. In today's society, sensitivity to sounds is a source of stress both to the dog and the owner. Fear can be triggered e.g. by the sound of a nail gun, air compressor, fireworks or thunder. In such cases, the Kelpie usually tries to escape the situation, and his excitement level is reduced but only rarely is he incapacitated by fear. In Finland, Kelpies are considered active sport dogs that should endure the sound of gunfire and other loud noises in trials and competitions. This is something to which both breeders and sport dog owners should pay attention in order to avoid sensitivity to sounds becoming more common in our breed. Excessive mental softness and nervousness are characteristics that a breeding dog should not have. Problems with nerve stability should also be taken into account in breeding.

Lack of drive is something that prevents the breeding use of a dog, as the Kelpie should give the impression of a motivated tireless worker. It is advisable to train all breeding dogs to the extent that their courage, endurance and ability to stay focused and maintain drive can be assessed.

#### **5. Realisation of the previous breeding strategy**

The previous breeding strategy for the Australian Kelpie does not state objectives very precisely. The following objectives can nevertheless be singled out:

**Objective:**

**To promote the use of a larger gene pool. To have dogs from litters registered in Finland used for breeding.**

**Result:**

- Effective population size of the Australian Kelpie per generation continues to increase.
- In the last five years, around 80% of all females and about 43% of all males that were used for breeding were from litters registered in Finland. Before the previous breeding strategy, these numbers were around 50% for both sires and dams.

**Objective:**

**To reduce the proportion of hip-joint dysplasia back to under 20% and to maintain the proportion of elbow dysplasia under 5%.**

Result:

- The proportion of hip-joint dysplasia has stayed below 20%.
- The proportion of elbow dysplasia remains clearly below 5%.

**Objective:**

**To increase the number of eye examinations; only around 29% of the breed's dogs have undergone official eye examination in recent years.**

Result:

- The number of eye examinations in the last five years cover about 35% of the breed's dogs. It should be noted, however, that if we were now assessing the results of the previous breeding strategy, the proportion would be different since at the moment about 42% of dogs born between 2004–2008 have undergone eye examination. Since 2010, the number of eye examinations per year have increased manyfold, so this objective can be said to have been met.

Table of eye examinations per year:

2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
23	18	9	18	19	64	63	58	53	29

**Objective:**

**To maintain the breed's status as an active sport dog.**

Result:

- A majority of breeders will only sell their pups to active dog sport homes. The more the registration figures rise, the more we see Kelpies entering trials and competitions, so this objective can be considered achieved.

**Objective:**

**To pay attention to nerve stability and gun-nervousness**

Result:

- More and more Kelpies are found to be nervous or gun-shy in the Finnish temperament test. With regard to gun-shyness, we may observe a statistically significant difference between the time periods ( $\chi^2=8.42$ ;  $df=2$ ;  $p=0.015$ ). As for nerve stability, no statistically significant difference can be observed between the time periods ( $\chi^2= 4.24$ ;  $df=2$ ;  $p=0.113$ ); however, the sample size is small. The situation needs to be closely monitored.
- In addition, 27% of Kelpies score 4 or 5 for steadiness to gunshot in the MH canine character evaluation (on a scale of 1 to 5, with 1 being the best score).

Comparison of temperament test results for nerve stability and gun-nervousness between the strategy periods 2002–2008 and 2009–2014.

## 6. Risks and opportunities as well as preparing for trouble

### Population

#### Strengths

- Inbreeding coefficient remains low.
- There is plenty of Finnish breeding material.
- Working Kelpies are now also used in breeding, and it is still possible to introduce them to the breed via open studbook - effective population size is still on the rise.
- Breeding use of sires and dams is spread evenly (sires/dams ratio is close to one).

#### Weaknesses

- Breeding dogs available in Finland are not used to full extent.
- Breeding choices and objectives tend to vary considerably between breeders.
- There are grandsires and granddams that have been used extensively for breeding.
- Every litter has a wider impact on breeding because of the small number of dogs in the breed.
- The most-used breeding dogs are related to each other.

#### Opportunities

- There is breeding material available in other countries.
- Breeding choices and objectives tend to vary considerably between breeders.
- Unregistered dogs that have been introduced to the breed via open studbook can be used for breeding.

#### Threats

- using same sires for several dams over a short period of time, thus increasing risks in terms of both diseases and temperament
- using young sires
- using imported dogs, which are often near kin to the Finnish population of Kelpies
- the emergence of 'fashionable' lines
- potential excessive use of imported dogs in a small population

### Temperament and working characteristics

#### Strengths

- The large amount of variation between individual Kelpies provides opportunities for breeding.
- There are a lot of potential breeding dogs in the breed.

#### Weaknesses

- sensitivity to sounds, poor ability to function, mental softness
- currently used metrics for evaluating temperament, which allow breeders to use individuals that have passed the novice class in working dog trials or a temperament test only after arduous training and desensitization

#### Opportunities

- new methods for assessing temperament, such as sheepdog trials and MH canine

- character evaluation
- excluding individuals with extreme temperament traits from breeding, if we had metrics that are accurate and reliable enough for this purpose

#### Threats

- focusing too much on other aspects of breeding, e.g. appearance, causing temperament to be overlooked
- focusing too much on champion titles when selecting breeding dogs, thus failing to take into account all aspects of temperament
- different diseases and faults preventing the breeding use of dogs that might have breed-typical working ability
- breeding from dogs that are timid or dogs that have low energy levels and are hard to motivate (Kelpies are usually sold to dog sports enthusiasts)
- loss of working characteristics

### Health

#### Strengths

- The number of health examinations has increased.
- Statistics show that results are positive.

#### Weaknesses

- Breeders and dog sport enthusiasts make commendable effort to have their dogs health tested, but the results are not utilized in breeding as much as they should be.
- Health test results for descendants are not available or results for littermates are overlooked.

#### Opportunities

- The breed club maintains a public health database: with openness and cooperation, the breed's health can be enhanced.
- Genetic testing for cerebellar abiotrophy (CA) might be available in the future.

#### Threats

- increased prevalence of hereditary diseases and the emergence of new diseases
- epilepsy
- overreacting to new diseases the prevalence of which is yet unknown

### General

#### Strengths

- Puppies whose parents are health tested and have successfully completed dog sport trials are much sought after.
- As the breed is healthy, Kelpies are easy to sell to people pursuing dog sports.

#### Weaknesses

- Due to high demand on Kelpies, breeding choices are sometimes dubious and lack sound justification.

#### Threats

- Favouring certain coat colours in breeding.